

MARKOVSKIY, N. I.

✓ 178. NEW COAL-BEARING REGIONS IN THE EASTERN PART OF THE RUSSIAN  
PLATFORM. Markovskii, N. I. (Dokl. Akad. Nauk SSSR (Rep. Acad. Sci.  
U.S.S.R.), 21 June 1956, vol. 108, (6), 1148-1151). The geology and  
supposed mode of formation of the coal are described. Seams of young  
coal up to 17 m thick have been found, the thickest at Suleevo in south-  
eastern Tatariya. The coal contains 14.6% ash, 3.6% inherent moisture,  
4.3% total sulphur, 77.42% carbon and 4.10% hydrogen (the latter two on a  
dry ash-free basis). (L).

*A-U Sci Res Inst. Coal Institute*

MARKOVSKIY, N.I.

1958. COAL-BEARING CHARACTERISTICS OF THE NINE VOLGA AND KAMA REGIONS.  
Markovskiy, N.I. (Ugol (Coal, Moscow), Mar. 1957, no. 13). Drilling for oil  
in the Volga-Ural ("Second Baku") field disclosed coal in several places.  
Some of these findings are described and tabulated. A seam about 15 m thick  
was found at one place in Tatariya. Drilling for coal has started in north-  
eastern Tatariya. (L).

MARKOVSKIY, N. I. kandidat geologo-mineralogicheskikh nauk.

Coal and petroleum resources of the Volga and Ural regions. Priroda 46 no.5:88-91 My '57. (MLRA 10:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy ugol'nyy institut (Moskva).  
(Ural Mountain region--Petroleum geology)  
(Ural Mountain region--Coal geology)

MARKOVSKIY, N.

"Principles of the genetic classification of caustobiolites" by V.P. Kozlov and L.V. Tokarev. Reviewed by N. Markovskii. Geol. nefti 2 no.1:70-72 Ja '58. (MIRA 11:1)

(Caustobiolites)  
(Kozlov, V.P.) (Tokarev, L.V.)

MARKOVSKIY, N.I.

Coal and petroleum potentials of the terrigenous formation in the  
lower Carboniferous of the central Volga Valley. Trudy MGRI 33:53-64  
'58. (MIRA 12:12)  
(Volga Valley--Coal geology) (Volga Valley--Petroleum geology)

MARKOVSKIY, N.I.

Relation between the oil-forming and the coal-bearing formations in the lower Carboniferous of the Volga-Ural area. Geol. nefti i gaza 3 no. 2: 22-29 Mr '50. (MIRA 10:4)

1. VUG.

(Volga Valley--Petroleum geology)  
(Volga Valley--Coal geology)  
(Ural Mountain region--Petroleum geology)  
(Ural Mountain region--Coal geology)

3(5,8)  
AUTHOR:

SOV/26-59-4-21/43  
Markovski N.I. Candidate of Geological and Mineral  
Sciences

TITLE:

Coal-Bearing Capacity and Forecasts of Oil and Gas  
Incidence (Uglenosnost' i prognoz neftegazonosnosti)

PERIODICAL:

Priroda, 1959, Nr 4, pp 80-93 (USSR)

ABSTRACT:

The author indicates that as a result of detailed re-  
search into the terrigenous layers of the Lower Car-  
bonic period in the south of Russian platform, a  
specific correlation between its coal and oil depo-  
sits has been established, which again leads to de-  
termining certain regions and regularities in their  
spatial distribution. This correlation conditioned  
by the joint development process of organic life on  
the continent and the sea has been determined by the  
concrete paleogeographic situation in general (see  
figure 1). It has been established by prospecting  
methods that the West Siberian depression is covered  
with Mesokainozoic sediments reaching a thickness of

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SOV/26-59-4-21/43

Coal-Bearing Capacity and Forecast of Oil and Gas Incidence

3,500 m and including almost all stratigraphical horizons of the Jurassic, Chalk, Paleogene and sometimes Neogen periods. For instance, it is known that there are oil and gas deposits connected with the terrigenous layers of the Jurassic period in the Ural-Emba oil and gas province; the Tertiary period provided even more favorable conditions for coal and oil formations (54% of the world's coal and 53% of the world's oil deposits falls into this period). Moreover, the Mesozoic deposits of the West Siberian depression in general hold good prospects for oil and gas occurrences. Therefore, to achieve successful prospecting it is necessary to study and determine the distribution of ancient seas and continents, their borders and time limits. There are 3 maps and 1 diagram.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy ugol'nyy institut (Moskva) (All-Union Scientific Research Institute of Coal)(Moscow)

Card 2/2



MARKOVSKIY, N. I.

Paleogeographical position of the Kizel coal basin and its genetic characteristics in the light of new data. Izv. AN SSSR. Ser. geol. 25 no.2:65-76 P '60. (MIRA 13:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy ugol'nyy institut poselok Panki, Moskovskoy oblasti.

(Kizel Basin--Coal geology)

MARKOVSKIY, N.I.

Coal potential as an index of the conditions governing the formation of an oil- and gas-bearing Lower Carboniferous layer in the Volga Valley portion of Saratov and Volgograd Provinces. Vest. Mosk. un. Ser. 4: 15-23 N-D '63. (MIRA 18:7)

1. Kafedra goryuchikh iskopayemykh Moskovskogo univeristeta.

MARKOVSKIY, M.I.

Prospects for finding oil and gas in the Lower Carboniferous of the  
Dnieper-Donets Trough. Izv. vys. ucheb. zav.; neft' i gaz 6 no.1:9-  
13 '63. (IIRA 17:10)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.

MARKOVSKIY, N.I.; BRAZHNIKOV, G.A.; VESNINA, T.L.

Prospecting for lithological oil and gas pools in the Volga Valley  
protion of Volgograd Province. Geol.nefti i gaza 6 no.4:25-29  
(MIRA 15:4)  
Ap '62.

1. Moskovskiy gosudarstvennyy universitet i Volgogradskiy  
nauchno-issledovatel'skiy institut neftyanoy i gazovoy pro-  
myshlennosti.

(Volgograd Province—Petroleum geology)

(Volgograd Province—Gas, Natural—Geology)

MARKOVSKIY, N.I.

Distribution of oil and gas in the Lower Carboniferous in the eastern part of the Russian Platform. Sov. geol. 6 no.6:75-93 Je '63. (MIRA 16:7)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.  
(Russian Platform—Petroleum geology)  
(Russian Platform—Gas, Natural—Geology)

MARKOVSKIY, N.I., kand.geologo-mineralog. nauk (Moskva)

Paleogeography and prospecting for rich petroleum deposits. Priroda  
52 no.8:88-90 Ag '63. (MIRA 16:9)

(Petroleum geology)

MEKOVSKIY, I.I.

Features of the ...  
Geol. Refl. ...

I. Mekovskiy postgraduate university in ...

MARKOVSKIY, Nikolay Iosifovich; DEMENT'YEVA, T.A., ved. red.

[Paleogeographic conditions governing the distribution  
of large oil pools; as revealed by a study of the Lower  
Carboniferous of the Russian Platform] Paleogeografiches-  
skie uslovia razmeshchenia kruznykh zalezhei nefii; na  
primere nizhnego karbона Russkoi platformy. Moskva, Izdat.  
1966. 398 p. (MIRA 18:1)



MARKOVSKIY, N.I.

Paleographic criteria for the distribution of large oil and gas pools.  
Izv. vys. ucheb. zav.; neft' i gaz 8 no.6:3-7 '65. (MIRA 18:7)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.

MARKOVSKIY, N.I.

Role of paleorivers in the formation of oil- and gas-bearing formations as revealed by a study of the Lower Carboniferous of the Russian Platform. Izv. AN SSSR. Ser. geol. 30 no.2:112-125 F '65. (MIRA 18:4)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.

~~MARKOVSKIY~~

Minima of eclipsing variables. Astron. tsir. no.177:17-18 P '57.  
(MIRA 10:6)

1. Odesskaya astronomicheskaya observatoriya.  
(Stars, Variable)

GOR, Yu.G.; MARKOVSKIY, V.A.

Relation between formations of the Tungusian series and marine  
Paleozoic deposits in the northwestern part of the Siberian Platform.  
Sbor. st. po paleont. i biostrat. no.13:15-19 '59.

(MIRA 13:3)

(Siberian Platform--Geology, Stratigraphic)

KRAVTSOV, A.G.; MARKOVSKIY, V.A.

Upper Cambrian stratigraphy and its Ordovician border line in  
the northwestern Siberian Platform. Trudy NIIGA 114:50-54 '60.  
(MIRA 13:11)

(Siberian Platform--Geology, Stratigraphic)

GOR, Yu.G.; MARKOVSKIY, V.A.

Structure of the tuffaceous formation and nature of the explosive  
activity in the northern Tungusk syncline. Trudy NIIGA 114:15.-  
162 '60. (MIRA 13:11)  
(Tunguska Valley--Volcanic ash, tuff, etc.)

ARTSYBASHEV, Ye.S., kand. sel'khoz. nauk, mladshiy nauchnyy sotr.;  
 VINOGRADOV, B.V., kand. geogr. nauk, starshiy nauchnyy  
 sotr.; KUZNETSOV, V.V., pochvoved, mladshiy nauchnyy sotr.;  
 MARKOVSKIY, V.K., inzh.-gidrogeol., mladshiy nauchnyy sotr.;  
 MEYER, G.Ya., doktor geol.-miner. nauk, starshiy nauchnyy  
 sotr.; NEFEDOV, K.Ye., inzh.-gidrogeol., aspirant; POPOVA,  
 T.A., kand. biol. nauk, mladshiy nauchnyy sotr.; KELL',  
 K.G., otv. red.; KUDRITSKIY, D.M., red. izd-va; ZAMARAYEVA,  
 R.A., tekhn. red.

[Application of aerial methods for the study of underground  
 waters; materials on the studies in Turkmenia, the north-  
 western regions of the East European Plain, and the Caspian  
 Depression] Primenenie aerometodov dlia izucheniia gruntovykh  
 vod; materialy issledovaniia v severo-zapadnykh raionakh  
 russkoi ravniny v Prikaspiiskoi nizmennosti Turkmenii. Mo-  
 skva, Izd-vo Akad. nauk SSSR, 1962. 141 p. (MIRA 15:11)

1. Russia (1923- U.S.S.R.) Ministerstvo geologii i okhrany  
 nedr. Laboratoriya aerometodov. 2. Chlen-korrespondent Aka-  
 demii nauk SSSR (for Kell').  
 (Water, Underground) (Aerial photogrammetry)

MARKOVSKIY, V. N.: DCLGCV, S. I.

Water, Underground

Quick method for determining salinity of soils and underground waters. Les. khoz 5 No. 9, 1952.

Monthly List of Russian Accessions, Library of Congress, November 1952. Unclassified.



SOV/112-58-1-755

Translation from: Referativnyy zhurnal, Elektrotehnika, 1958, Nr 1, p 112 (USSR)

**AUTHOR:** Markovskiy, V. N.

**TITLE:** Field-Type Universal Saltmeter SM-6  
(Polevoy universal'nyy solemer SM-6)

**PERIODICAL:** Les. kh-vo, 1956, Nr 10, pp 92-93

**ABSTRACT:** Alternating current is used in SM-6 saltmeter for measuring salinity of ground or surface waters, of soils, etc., under field conditions, thus eliminating polarization of the electrodes. The salinity measurement range for water is 10 g/l; for soils, up to 5% of their weight. The instrument can be supplied from an AC line or from internal dry batteries. Measurement of overall salinity is based on electric conductivity of water or aqueous extraction of soil. The measuring unit is, in fact, an AC ohmmeter with a detector-type milliammeter. A vibrapack is used in case of dry-battery supply. A thermistor is used for temperature compensation. A plexiglas 15-ml cup with graphite electrodes in its walls serves as a pickup; converting the instrument reading

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SOV/ 112-58-1-755

Field-Type Universal Saltmeter SM-6

into salt-content units is accomplished by calibration curves. Instrument error ranges from 1% to 5%, depending on the concentration of the solution in question.

M. A. B.

AVAILABLE: Library of Congress

1. Salinometers--Performance
2. Water--Electrical factors

Card 2/2

Markovskiy, V.N.

USSR/Chemical Technology - Chemical Products and Their  
Application - Leather. Fur. Gelatin. Tanning Agents.  
Technical Proteins.

I-29

Abs Jour : Referat Zhur - Khimiya, No 9, 1957, 33125

Author : Markovskiy, V.N., Kardonskaya, A.S.

Inst :

Title : Determination of Salinity of Wash-Water with EM-1  
Electrometer.

Orig Pub : Legkaya prom-st', 1956, No 11, 40-42

Abstract : To determine the content of salts in wash-water of chrome-leather manufacture an EM-1 electrometer has been designed. The operation principle of which is based on the correlation between conductance of the solution and concentration and dissociation degree of electrolyte. A diagram and a description of the apparatus are included. This apparatus makes it possible to determine the total amount of all the salts, and not merely the content of chlorides. It is

Card 1/2

USSR/Chemical Technology - Chemical Products and Their  
Application - Leather. Fur. Gelatin. Tanning Agents.  
Technical Proteins.

I-29

Abs Jour : Ref Zhur - Khimiya, No 9, 1957, 33125

It is reported that work is in progress on the utilization of this apparatus in operation control of other processes of leather manufacture.

Card 2/2

MARKOVSKIY, V. V.

AID P - 1154

Subject : USSR/Electricity  
Card 1/1 Pub. 29 - 7/31  
Authors : Volodin, V. A., foreman and Markovskiy, V. V., Eng.  
Title : Improvement of performance of condensate pumps  
Periodical : Energetik, 11, 16-17, N 1954  
Abstract : The authors briefly describe faults occurring in the KD-76 type pumps, and the improvements they introduced by a better method of hydraulically compacting the pump gaskets.  
Institution : None  
Submitted : No date

POLUKHIN, P.I.; POLUKHIN, V.P.; ZHELEZNOV, Yu.D.; MARKOVSKIY, V.Yu.

Investigating stresses and deformations in two-dimensional sheet  
rolling mill rolls by the method of two-dimensional photoelasticity.  
Izv.vys.ucheb.zav.; chern.met. 5 no.4:61-75 '62. (MIRA 15:5)

1. Moskovskiy institut stali.  
(Rolls (Iron mills)) (Photoelasticity)

POLUKHIN, P. I., prof., doktor tekhn. nauk; ZHELEZNOV, Yu. D., inzh.;  
POLUKHIN, V. P., inzh.; MARKOVSKIY, V. Yu., inzh.

Heat balance in the performance of five-stand cold rolling  
mills. Sbor. Inst. stali i splav. no.40:219-224 '62.  
(MIRA 16:1)

(Rolling mills) (Heat)

ACCESSION NR. AP4022896

S/0148/64/000/003/0081/Q086

AUTHOR: Markovskiy, V. Yu.; Polukhin, P. I.; Shaskol'skaya, M. P.

TITLE: Determination of the photoelasticity of a fine-grained annealed silver chloride constant subjected to elastic and plastic deformation

SOURCE: IVUZ. Chernaya metallurgiya, no. 3, 1964, 81-86

TOPIC TAGS: Photoelasticity, AgCl, Mo, bending test, tensile test, residual stress, elastic deformation, plastic deformation, AgCl deformation

ABSTRACT: The authors investigated the photoelastic properties of fine-grained polycrystalline AgCl subjected to plastic and elastic deformation after annealing. Single crystals with a diameter of 31 mm and a height of 120 mm were grown in Mo glass crucibles in a vertical tubular electric furnace with a rated temperature gradient. The grown crystal was cut into 40-45 mm cylinders and reduced to 2 to 3 mm-thick plates that were annealed for recrystallization. With a 95% deformation rate 10-hour holding was found to be optimal. Maximum grain size was 0.05 mm and no residual stresses were detected in the specimens. Bending - tensile tests yielded the relationship between the values of the optical difference in

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ACCESSION NR: AP4022896

the occurrence of  $\delta$  and the actual stress  $\sigma$ , making it possible to express the law of photoelasticity as follows:  $\delta = Cd\sigma$

where C is the optical constant, d - the thickness of the specimen and  $\sigma$  - the actual tensile stress. The value of the optical constant was equal to (60 to 70)  $\times 10^{-7} \text{ cm}^2/\text{kg}$  after tensile tests and (50 to 56)  $\times 10^{-7} \text{ cm}^2/\text{kg}$  after pure bending tests. A fibrous structure appeared after the application of loads in excess of  $\sigma = 1.5 \text{ } \pm \text{ } 1.8 \text{ kg/mm}^2$ . The determination of the optical constant for fine-grained pseudoisotropic silver chloride provides the possibility of a qualitative and quantitative analysis of the stressed state of pseudoisotropic crystalline materials under the effect of plastic and elastic deformation.

ASSOCIATION: Moskovskiy institut stali i splavov (Moscow Institute of Steel and Alloys)

SUBMITTED: 01Aug63

DATE ACQ: 10Apr64

ENCL: 00

SUB CODE: ML

NO REF SOV: 005

OTHER:001

Card 2/2

MARKOVSKIY, V. Yu.; POLUKHIN, P. I.; SHASKOL'SKAYA, M. P.

Investigating elastic-plastic clean bends by the optical polarization method. Izv. vys. ucheb. zav.; Chern. met. 7 no. 5:85-89  
'64. (MIRA 17:5)

1. Moskovskiy institut stali i splavov.

L 31862-65 EWT(d)/EWT(m)/EWP(w)/EWA(d)/I/EWP(t)/EWP(b) JD/EM

ACCESSION NR: AP5003369

S/0149/64/000/006/0109/0115

AUTHOR: Markovskiy, V. Yu.; Polukhin, P.I.; Shaskol'skaya, M.P.

TITLE: A method for the simultaneous observation of stresses and strains in crystalline substances in the elastic and plastic regions

SOURCE: IVUZ. Tsvetnaya metallurgiya no. 6, 1964, 109-115

TOPIC TAGS: crystal stress, crystal strain, elastic deformation, plastic deformation, silver chloride, stress strain diagram, polarization optics, photoelastic coating

ABSTRACT: A new technique is described for the simultaneous and direct study of the actual and residual stresses and strains by a polarization-optical method. The essential feature of the technique consists in observing the stresses in a polycrystalline material (AgCl) and at the same time studying the strains by the method of photoelastic coatings. In the latter method, a reflecting layer of metallic silver is deposited on the polycrystalline AgCl, and an optically sensitive coating is placed on top of that layer. Two patterns of isochromes (one in AgCl and one in the coating) are then observed on two separate screens, the specimens being subjected to loads. The apparatus and method of operation are described in detail. The technique can be successfully applied to the study of single crystals and coarse-grained polycrystalline samples of any crystalline substance

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L 31862-65

ACCESSION NR: AP5003369

(or amorphous material) producing an optical effect when subjected to stresses. Quantitative data were obtained on the distribution of residual stresses and strains in a sample of fine-grained polycrystalline AgCl subjected to pure plastic bending. The data obtained for silver chloride by the method of photoplasticity can be extended to metals when the simulation laws are observed. Orig. art. has: 5 figures and 1 formula.

ASSOCIATION: Moskovskiy institut stali i splavov (Moscow steel and alloys institute)

SUBMITTED: 21Feb64

ENCL: 00

SUB CODE: MM, IE

NO REF SOV: 009

OTHER: 001

Card 2/2

MARKOVSKIY, Yevgeniy Adamovich; MOVCHAN, Boris Alekseyevich; STETSSENKO,  
Vsevolod Ivanovich; SAL'NIKOV, G., vedushchiy redaktor; NOVIK, A.,  
tekhnicheskiy redaktor

[Radioisotopes in metal research] Radioaktivnye izotopy pri issledo-  
vanii metallov. Kiev, Gos. izd-vo tekhn. lit-ry USSR, 1956. 87 p.  
(MLRA 9:10)

(Radioisotopes--Industrial applications)  
(Metals)

SOV/137-58-10-21553

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 10, p 157 (USSR)

AUTHORS: Seredenko, B.N., Stetsenko, V.I., Markovskiy, Ye.A.

TITLE: Wear-resistance of High-strength Cast Iron Employed in the  
Manufacture of Tractors (Iznosostoykost' vysokoprochnogo  
chuguna, primenyavemogo v traktorostroyeni)

PERIODICAL: Nauchn. tr. In-ta mashinoved. i s.-kh. mekhan. AN UkrSSR,  
1958, Vol 6, pp 33-52

ABSTRACT: Weighing methods and radioactive isotopes were employed  
in wear-resistance tests performed on cast iron with spheroidal  
graphite (CISG) paired with various other types of cast iron and  
steel. The tests were carried out with and without lubrication  
under varying specific pressures. A horizontal plateau ob-  
served on curves representing the wear of pearlitic cast iron  
as a function of the specific pressure indicates that within a  
certain interval the wear is independent of the specific pres-  
sure. The fact that wear is not affected by an increase in pres-  
sure is attributable to an optimal saturation of friction surfaces  
with austenite that is formed during friction. For each pair (at  
a given velocity of friction) there exists a critical loading under

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SOV/137-58-10-21553

Wear-resistance of High-strength Cast Iron (cont.)

which both the nature and the magnitude of wear are altered (the beginning of seizing). Under dry friction, pressures up to  $40 \text{ kg/mm}^2$  (at velocities up to 1 m/sec) and  $25 \text{ kg/mm}^2$  (at a velocity of 3 m/sec) are permissible for components made of CISG with a pearlite or pearlite-ferrite structure. With full lubrication the specific pressures may be increased to  $80 \text{ kg/mm}^2$  (at a velocity of 1 m/sec). Operational tests performed on D-54 Diesel units with crankshafts made of CISG and of steel demonstrated that crank-pin wear is smaller in the case of the CISG crankshafts. The CISG crankshafts contained 15-25 and 40-60% of structural ferrite; the wear of the first group (containing 15-25% ferrite) was found to be somewhat greater than the wear of the second group.

E.Sh.

1. Cast iron--Mechanical properties
2. Cast iron--Testing equipment
3. Radioisotopes--Performance
4. Cast iron--Test results

Card 2/2

LYUSHIN, M.I. [Liushyn, M.I.], kand. tekhn. nauk.; STETSSENKO, V.I., kand. tekhn.  
nauk.; MARKOVSKIY, Ye.A. [Markovs'kyi, YE.A.], inzh.

Increasing the lifetime of piston parts of the D-54 engine. Mekh.  
sil'. hosp. 9 no. 8:31-32 Ag '58. (MIRA 11:8)  
(Pistons)



MARKOVSKIY, Ye.A.; STETSENKO, V.I.; YAROLOV, I.N.; YARENCHUK, V.V.; TUROVSKIY,  
I.Ya.; DROBYAZKO, T.T.

Short reports. Zav.lab. 24 no.4:503-504 '58. (MIRA 11:4)

1. Institut mashinovedeniya i sel'skokhozyaystvennoy mekhaniki Akademii  
nauk USSR (for Markovskiy and Stetsenko). 2. Zavod sel'skokhozyaystven-  
nogo mashinostroyeniya, g. Stalino (for Yaropolov). 3. Moskovskiy  
institut inzhenerov zheleznodorozhnogo transporta (for Turovskiy).  
(Testing machines)

MARKOVSKIY, Ye. A., Candidate Tech Sci (diss) -- "Investigation of the antifriction properties of high-strength cast iron under slide friction". Kiev, 1959.  
16 pp (Kiev Inst of the Civil Air Fleet im K. Ye. Voroshilov), 150 copies  
(KL, No 23, 1959, 167)

33716

S/686/61/000/000/009/01  
D207/D303

11730 1454

AUTHORS: Stetsenko, V. I. and Markovskiy, Ye. A.

TITLE: Some features of the state of metal surfaces deformed by friction

SOURCE: Soveshchaniye po voprosam teorii sukhogo treniya i iznashivaniya chastits iznosa pri sukhom trenii. Riga 1980. 129-137

TEXT: The authors subjected high-strength cast iron, containing globular graphite, to dry sliding friction and to axial compression and studied the formation of wear-resisting surface layers. X-ray diffractograms, obtained by L. I. Rybak with a YPC-50M (URS-50I) instrument, showed that coherent scattering regions in the surface of cast iron were smaller  $(1.8 - 3.5) \times 10^{-6}$  cm. after dry friction than after axial compression,  $(2.0 - 4.6) \times 10^{-6}$  cm. Block fragmentation increased on increase of pressure during dry friction, irrespective of the actual structure of cast iron. In the

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35716

S/686/61/000/000 009/012  
D207/D303

Some features of ...

case of axial compression an increase of pressure beyond a certain deformation (30%) did not alter block dimensions. At constant pressure dry friction produced stronger block fragmentation in ferrite than in pearlite; the converse occurred in axial compression. Distortions of the second kind,  $\Delta a/a$ , depended on the mode of deformation and on crystal structure. Under dry friction the distortions in ferrite always increased in extent with increase of applied pressure, but in pearlite a pressure beyond a certain value left these distortions unaffected. In axial compression which produced deformation greater than 20 - 30% an increase of applied pressure did not affect distortions in pearlite and ferrite. Dry friction produced very rapid local changes of temperature ( $\geq 10^4$  deg/sec), as found with a microthermal couple and a string oscillograph МПО-2 (MPO-2). Such temperature changes favored formation of austenite in surface layers which hardened these layers. This did not happen under axial compression. Under some conditions of dry friction an increase of applied pressure or of sliding velocity decomposed the freshly formed  $\gamma$ -phase and caused precipitation.

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Some features of ...

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S/686/61/000/000/009/0-2  
D207/D303

tion of carbide; this raised the surface hardness and wear resistance. It was also found that dry friction intensified diffusion in surface layers of one metal and between surfaces of two metals in friction. The surface layers produced by dry friction had a fine-grain structure with occlusions at least 100 times smaller than those present initially in cast iron. There are 6 figures and 1 reference: 3 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: C. S. Barrett, Phys. Rev., 72, 3, 1947; R.P. Agarwala and H. Wilman, Proc. Roy. Soc., A, 223, 1954.

ASSOCIATION: Institut liteynogo proizvodstva AN USSR (Institute of the Foundry Industry, AS UkrSSR)

Card 3/3

PAKHOMOV, B.P., inzh.; MARKOVSKIY, Ye.A., inzh.; STETSENKO, V.I., kand. tekhn. nauk

Performance of full-flow jet centrifugal oil cleaner of the  
D-14 engine. Trakt. i sel'khoz mash. no. 2:12-14 P '59.  
(MIRA 12:1)  
(Tractors--Engines--Oil filters)

MARKOVSKIY, Ye.A. [Markovs'kiy, IE.A.]; CHERNYI, V.G. [Chornyi, V.H.]

Structural changes in nickel during cold welding. Ukr. fiz. zhur.  
5 no. 5:693-695 8-0 '60. (MIRA 14:4)

1. Institut liteynogo proizvodstva AN USSR.  
(Nickel—Welding)

MARKOVSKIY, YE. A.

PHASE I BOOK EXPLOITATION 307/5053

Vsesoyuznaya konferentsiya po treniyu i iznosu v mashinakh. 3d, 1958.

Iznes i iznosostoykost'. Antifrictionnyye materialy (Wear and Tear Resistance. Antifriction Materials) Moscow, Izd-vo AN SSSR, 1960. 273 p. Errata slip inserted. 3,500 copies printed. (Series: Its Trudy, v. 1)

Sponsoring Agency: Akademiya nauk SSSR, Institut mashinovedeniya. Resp. Ed.: M. M. Khrushchov, Professor; Eds. of Publishing House: M. Ya. Klebanov, and S. L. Orlik; Tech. Ed.: T. V. Polyakova.

PURPOSE: This collection of articles is intended for practicing engineers and research scientists.

COVERAGE: The collection published by the Institut mashinovedeniya, AN SSSR (Institute of Science of Machines, Academy of Sciences USSR) contains papers presented at the III Vsesoyuznaya Konferentsiya po treniyu i iznosu v mashinakh (Third All-Union Conference on Friction and Wear in Machines) which was held April 9-15, 1958. Problems discussed were in 5 main areas: 1) Hydrodynamic Theory of Lubrication and Friction Bearings (Chairman: Ye. M. Gut'yar, Doctor of Technical Sciences, and A. K. D'yachkov, Doctor of Technical Sciences); 2) Lubrication and Lubricant Materials (Chairman: G. V. Vinogradov, Doctor of Chemical Sciences); 3) Dry and Boundary Friction (Chairman: B. V. Deryagin, Corresponding Member of the Academy of Sciences USSR, and I. V. Kragelskiy, Doctor of Technical Sciences); 4) Wear and Wear Resistance (Chairman: M. M. Khrushchov, Doctor of Technical Sciences); and 5) Friction and Antifriction Materials (Chairman: I. V. Kragelskiy, Doctor of Technical Sciences). Chairman of the general assembly (on the first and last day of the conference) was Academician A. A. Blagonravov. L. Yu. Prushanskiy, Candidate of Technical Sciences, was scientific secretary. The transactions of the conference were published in 3 volumes, of which the present volume is the first. This volume contains articles concerning the wear and tear resistance of antifriction materials. Among the topics covered are: modern developments in the theory and experimental science of wear resistance of materials, specific data on the wear resistance of various combinations of materials, methods for increasing the wear resistance of certain materials, the effects of friction and wear on the structure of materials, the mechanics of the seizing of metals, the effect of various types of lubricating materials on seizing, abrasive wear of a wide variety of materials and components under many different conditions, modern developments in antifriction materials, and the effects of finish machining on wear resistance. Many personalities are mentioned in the text. References accompany most of the articles.

Misharin, Yu. A., and A. V. Slivakova, Laboratory Investigation of the Antiseizing Stability of Several Materials Used in Worm Gears

170

Semenov, A. P., Problems in the Theory of the Seizing of Metals

174

Semenov, A. P., Comparative Estimate of the Antiseizing Properties of Materials and Their Combinations

184

3. Abrasive Wear. Wear Under Special Conditions of Friction

Bezborod'ko, M. D., Wear of Steel and Bronze at High Specific Contact Pressures in the Presence of Organic and Monorganic Lubricants and an Abrasive

191

Vasilenko, A. A., V. I. Stetsenko, and Ye. A. Markovskiy, Investigation of the Wear Resistance of Highly Durable Cast Iron

201

Card 8/13

7



MARKOVSKIY, Yevgeniy Adamovich[Markovs'kyi, IE.A.]; STETSENKO, Vsevolod  
Ivanovich; BRAUN, M.P., doktor tekhn. nauk, otv. red.;  
PYECHKOVSKAYA, O.M.[Piechkovs'ka, O.M.], red. izd-va; LIBERMAN ,  
T.R., tekhn. red.

[Application of radioactive isotopes for testing internal-  
combustion engines] Zastosuvannia radioaktyvnykh izotopov dlia  
doslidzhennia dvyhuniv vnutrishn'oho zhoriannia. Kyiv, Vyd-vo  
Akad. nauk URSR, 1961. 45 p. (MIRA 15:3)

(Gas and oil engines--Testing)  
(Radioisotopes--Industrial applications)

MARKOVSKIY, Ye.A.

Investigating the antifriction characteristics of high-strength  
cast iron with spheroidal graphite. Nauch. trudy Inst. lit.  
proizv. AN UKSR no.10:81-92 '61. (MIRA 14:0.)  
(Cast iron--Testing) (Mechanical wear)

S/126/61/011/002/018/025  
E193/E483

AUTHORS: Markovskaya, L.I., Markovskiy, Ye.A., Stetsenko, V.I.  
and Chernyy, V.G.

TITLE: The Effect of Friction and Plastic Deformation on the  
Fine Structure of High-Strength Cast Iron

PERIODICAL: Fizika metallov i metallovedeniye, 1961, Vol.11, No.2,  
pp.296-301

TEXT: Pearlitic and ferritic cast irons containing (wt.%)  
3.64 C, 2.42 Si, 0.60 Mn, 0.045 P, 0.0322 S, 0.19 Cr and  
0.96 Mg, were used in the present investigation. Cylindrical  
specimens were subjected to uniaxial compression to attain  
deformation ranging from 7 to 75% the effect of deformation on  
the distortions of the second type ( $\Delta a/a$ ) and on the size  $D$  of  
the regions of coherent scattering of X-rays was studied. In  
addition, the effect of sliding friction (at a constant speed of  
3.25 m/sec) on these characteristics was studied. The results  
are reproduced graphically in Fig.1 and 2. In Fig.1, the degree  
of lattice distortion of the second type ( $\Delta a/a \cdot 10^{-3}$ , right-hand  
scale) and the dimension of the mosaic blocks ( $D \cdot 10^{-6}$  cm, left-  
hand scale) are plotted against the degree (%) of deformation,  
Card 1/3

The Effect of Friction ...

S/126/61/011/002/018/025  
E193/E483

curves 1 and 2 relating to pearlitic and ferritic cast irons, respectively. In Fig.2,  $\Delta a/a$  and  $D$  are plotted against the specific pressure ( $\text{kg/cm}^2$ ) applied during the friction tests on pearlitic (curve 1) and ferritic (curve 2) cast irons. It has been established that both uniaxial compression and friction loads cause considerable distortion of the crystal lattice and bring about a decrease in the size of the mosaic blocks in the matrix, each effect being more pronounced in the pearlitic cast iron. Similarly, microhardness of pearlitic cast iron, subjected to either type of deformation, is higher than that of the ferritic alloy. In the surface layers of specimens of both types of cast iron, subjected to friction loading, a transformation takes place, as a result of which austenite is formed and the quantity of cementite in the alloy increases, the content of both these phases increasing with increasing magnitude of the applied pressure. It was concluded that the results of the present investigation can be used to evaluate the resistance to deformation of materials operating under friction loads. There are 4 figures, 2 tables and 2 Soviet references.

Card 2/3

The Effect of Friction ...

S/126/61/011/002/018/025  
E193/E483

ASSOCIATION: Institut liteynogo proizvodstva AN UkrSSR  
(Institute of Foundry Production AS UkrSSR)

SUBMITTED: June 8, 1960

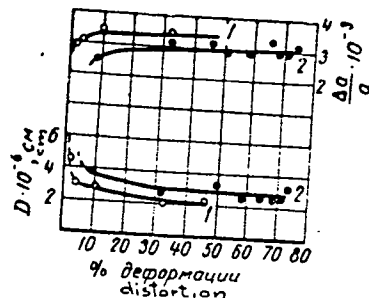


Fig. 1.

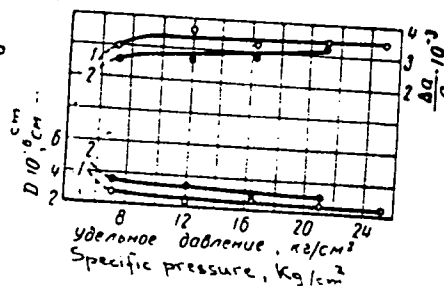


Fig. 2.

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S/743/62/000/001/004/008

**AUTHORS:** Kochegura, N. M., Krasnoshchekov, M. M., Markovskiy, Ye. A.

**TITLE:** On the effect of nuclear radiations on the properties of metallic alloys.

**SOURCE:** Struktura i svoystva litykh splavov. no.1. Inst. lit. proizv. AN USSR. Kiev, Izd-vo AN UkrSSR, 1962, 67-75.

**TEXT:** The paper provides a discussion based on a literature survey, primarily of English-language Western publications. It discusses the effects of nuclear neutron radiation on metallic alloys in the sense of the Seitz and Brinkmann theories. The effects of neutron radiation on the hardness, tensile strength, and yield point of various steels, including SAE 1018 and 1095, stainless steel 304 and 316, and ASTM-A212B and -A242 with various grain sizes, are summarized in several extensive tables. Radiation impingement on cast structural steels, especially when in the normalized or annealed state, can substantially increase the strength of such materials, affording them a strength that approaches that of work-hardened steel. It is suggested that investigations be performed to establish the changes in the properties of irradiated cast materials versus the radiation dose and to ascertain the minimal radiation dose that affords the desired effect. It appears advisable also to undertake an investigation of the effect of neutron radiation on the heat

Card 1/2

On the effect of nuclear radiations on the ...

S/743/62/000/001/004/008

treatment of cast alloys. There are 1 figure, 4 tables, and 23 references (9 Russian-language Soviet, 13 Russian-language translations of English-language original papers, and 1 English-language original: Harries, D., J. of Iron & Steel Inst., v.194, 1960, 289).

ASSOCIATION: Institut liteynogo proizvodstva, AN USSR (Institute of Casting Production, AS UkrSSR).

Card 2/2

MARKOVSKIY, Ye. A.

Carbon diffusion in high-strength cast iron deformed by friction.  
Struk.i svois.lit.splav. no.1.135-141 '62. (MIRA 15.)  
(Cast iron--Hardening) (Surface hardening)



TIKHONOVICH, V.I.; MARKOVSKIY, Ye.A.; PAKHOMOV, B.P.

Wear-in characteristics of high strength cast iron. Struk.i svois.  
lit.splav. no.1:148-151 '62. (MIRA 15:5)  
(Cast iron--Testing) (Mechanical wear)

MARKOVSKIY, Ye. [Markovs'kyi, IE.], kand.tekhn.nauk

Radioactive isotopes in technology. Nauka i zhyttia 11  
no.2:24-25 F '62. (MIRA 15:3)  
(Radioisotopes--Industrial application)

KRASNOSHCHIEKOV, M.M.; PAKHOMOV, B.P.; MARKOVSKIY, Ye.A.

Use of radioactive isotopes in studying the wear resistance of  
crank shafts. Trakt. i sel'khoz mash. 32 no.2:36-38 F '62.

(MIRA 15:2)

1. Institut liteynogo proizvodstva AN USSR.  
(Tractors--Engines)  
(Radioactive substances--Industrial applications)

MILEVSKIY, Eduard Borisovich; MARKOVSKIY, Ye. A., kand. tekhn. nauk,  
retsenzent; RABINOVICH, A. N., prof., doktor tekhn. nauk, red.;  
CHISTYAKOVA, L. G., inzh., red.; GORNOSTAYPOL'SKAYA, M. S.,  
tekhn. red.

[Radiation check and measurement of workpieces] Radiatsionnyi  
kontrol' i izmerenie izdelii. Moskva, Mashgiz, 1963. 129 p.  
(MIRA 16:6)  
(Radioisotopes--Industrial applications)  
(Engineering inspection)

MARKOVSKIY, Ye.A.; KRASNOSHCHIEKOV, M.M.

Measurement of the temperature of friction surfaces of parts  
by means of a weldless thermocouple. Zav. lab. 29 no.9:  
1107-1109 '63. (MIRA 17:1)

1. Institut liteynogo proizvodstva AN UkrSSR.

MARKOVSKIY, Ye.A., inzh.; PAKHOMOV, B.P., inzh.; TIKHONOVICH, V.I., inzh.;  
KRASNOSHCHENOV, M.M., inzh.

Using high-strength cast iron in precision friction pairs. Mashino-  
stroenie no.4:105-106 J1-Ag '63. (MIRA 17:2)

1. Institut liteynogo proizvodstva AN UkrSSR.

STETSENKO, V.I., otv. red.; MARKOVSKIY, Ye.A., red.; IUGANSEN, V.S.,  
red. DEM'YANENKO, T.P., red.; LASHENOVA, N.M., red.

[Use of radiation in automation, isotopes and nuclear radiation in science and technology] Radiatsionnaya avtomatika, izotopy i iadernye izlucheniya v nauke i tekhnike. Kiev, 1964. 193 p. (MIRA 17:8)

1. Akademiya nauk U.S.S.R., Kiev.

KOCHEGURA, N.M., inzh.; MARKOVSKIY, Ye. A., kand.tekhn.nauk

Using radioisotopes for checking the density of foundry  
molds. Mashinostroenie no. 2:53-54 Mr-Ap '64. (MIRA 17:5)



KOCHEGURA, N.M., inzh.; MARKOVSKIY, Ye.A., kand. tekhn. nauk

Using beta radiation for checking the moisture content in  
molding sands. Mashinostroenie no.5836-39 S-O '64  
(MIRA 18:2)

KRUKOVSKAYA, G.N.; MARKOVSKII, V.V.

Study of the distribution of phosphorus during the development  
of reversible temper brittleness in steel 15KhGS. Zvezda.  
86 no.4:464-465 '64. (MIA 1964)

1. Institut liteynogo proizvodstva.

MARENISKIY, Yevgeniy Adamovich, kand. tekhn. nauk; TIKHONOVICH,  
Sergey Ivanovich, kand. tekhn. nauk; TIMOFEY, A. I., kand.  
tekhn. nauk, rezensent

[Radioactive testing of the wear of parts of internal  
combustion engines] Radioaktivnyi kontrol iznosa detalей  
dvigatelei vnutrennego sgoraniya. Kiev, Tekhnika, 1965.  
74 p. (MIRA 18:10)

L 12165-66 EWT(m)/EPF(n)-2/T/EWA(d)/EWP(t)/EWP(z)/EWP(b)/EWA(h) JD/DJ  
 ACC NR: AP5028371 SOURCE CODE: UR/0369/65/001/005/0552/0556  
 AUTHOR: Markovskiy, Ye. A.; Krasnoshchekov, M. M.; Kochegura, N. M.  
 ORG: Institute of Foundry Problems, AN UkrSSR, Kiev (Institut problem lit'ya AN UkrSSR)  
 TITLE: Changes in the antifriction and strength characteristics of structural materials subjected to neutron irradiation  
 SOURCE: Fiziko-khimicheskaya mekhanika materialov, v. 1, no. 5, 1965, 552-556  
 TOPIC TAGS: steel, copper, antifriction material, antifriction metal, neutron irradiation, nuclear reactor material, cast iron, irradiation effect, fabricated structural metal, metal physical property, stress relaxation  
 ABSTRACT: This work studies the changes in the antifriction parameters of some structural metals and alloys subjected to various degrees of neutron irradiation in an operational neutron reactor. Simultaneously, the changes in some of the strength characteristics of the materials are also determined. The materials studied were steel No. 45, various types of cast iron, copper, and SB-30 lead bronze. The results obtained give grounds to conclude that the accelerated process of stress relaxation under the effect of irradiation may take place not only for stressed materials but also for metastable hardened structures. An attempt  
 Cord 1/2

L 12165-66

ACC NR: AP5028371

is made to explain the time-dependent decrease in the strength of steel subjected to irradiation, but it is not sufficiently grounded. Further experimental work is required. The work performed showed, however, that the materials tested, after undergoing a stage of relative decrease in strength, obtain under prolonged neutron irradiation satisfactory antifriction and strength characteristics and may be successfully used in friction joints. Work in this field, according to the present authors, should be directed toward the study of the wear resistance and setting of materials under neutron irradiation, in vacuum, at high temperatures, and in special media. Orig. art. has: 5 figures.

SUB CODE: 11, 18 / SUMM DATE: 13Oct64 / ORIG REF: 002 / OTH REF: 001

antifriction materials

18.

HW

Card 2/2

U 3/6/65 EWP(w)/EWT(m)/EPF(s)/EWA(d)/EPF(n)-2/EWP(t)/T/EWP(b)/EWA(h) Pr-4/  
 335 P-41 JD/BW/IM/JG/IM/DJ/GG  
 S/0089/65/018/001/0072/0073  
 ACCESSION NR: AP5004012

AUTHORS: Markovskiy, Ye. A.; Krasnobhchekov, M. M.

TITLE: Antifriction characteristics of neutron-irradiated steel

SOURCE: Atomnaya energiya, v. 18, no. 1, 1965, 72-73

TOPIC TAGS: neutron irradiation, radiation damage, steel, wear resistance, hardness

ABSTRACT: The purpose of the investigation was to determine the changes in the antifriction properties of medium-carbon steel under the influence of neutron irradiation under real conditions prevailing in a nuclear reactor, and to determine the minimum integral neutron flux causing a change in these properties. The samples tested were pins of St.45 steel (0.49% C, 0.56% Mn, 0.27% Si) 3 mm in diameter and 10 mm long. The samples were irradiated with different integral neutron fluxes and tested for hardness and for wear together with

Card 1/3

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ACCESSION NR: AP5004012

non-irradiated samples. The tests for wear were made with a laboratory setup described elsewhere (Ye. A. Markovskiy and V. I. Stetsenko, Zavodsk. laboratoriya No. 4, 503, 1958). The friction coefficient was measured with inductive pickups connected to an automatic recording galvanometer. The tests were made in fluxes of  $10^{16}$ ,  $10^{17}$ ,  $10^{18}$ ,  $10^{19}$ , and  $10^{20}$  neut/cm<sup>2</sup> in vertical channels of the nuclear reactor of Institut fiziki (Physics Institute) AN UkrSSR. The results have shown that the hardness has a minimum near  $10^{17}$  neut/cm<sup>2</sup> for steel heat treated in different manners, and that at small radiation doses the wear resistance of annealed steel decreases, with the maximum wear occurring at  $10^{18}$  neut/cm<sup>2</sup>. Further increase in the dose reduces the wear, and when the flux is  $10^{20}$  neut/cm<sup>2</sup> the wear is actually 30% lower than for non-irradiated samples. The reduction in hardness ranges from 2% for normalized steel to 8% for annealed steel. The effect of temperature is also briefly discussed. Orig. art. has: 3 figures.

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**AF5004012**

1990年12月15日

**REMARKS:** **020000Z**

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**ENCL: 00**

**ISBN CODE: MM, NP**

**OTHER: 000**

**Card**

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L 32036-65 EWP(w)/EWT(m)/EPF(c)/EWA(d)/EPF(n)-2/EWP(t)/T/EWP(b) Pr-4/Pu-4

JD/GG

S/0126/65/019/002/0306/0308

ACCESSION NR: AP5006340

AUTHOR: Markovskiy, Ye. A.; Krasnoshchekov, M. M.; Kochegura, N. M.

TITLE: Effect of irradiation with neutrons on the ferritic-pearlitic structure of iron-carbon alloys

SOURCE: Fizika metallov i metallovedeniye, v. 19, no. 2, 1965, 306-308

TOPIC TAGS: carbon steel, malleable iron, steel irradiation, malleable iron irradiation, pearlite, ferrite, neutron irradiation, irradiated steel property, irradiated malleable iron property, irradiated pearlite property, irradiated ferrite property

ABSTRACT: Specimens of carbon steel (0.49% C, 0.56% Mn, 0.27% Si) and malleable iron (3.13% C, 0.65% Mn, 3.33% Si) annealed to a ferrite-pearlite structure with respective ferrite contents of 50 and 10% were irradiated with neutron doses of  $10^{16}$  to  $10^{20}$  neutron/cm<sup>2</sup>. The hardness, tensile strength, yield strength, and wear resistance of both metals first dropped, but then increased with increasing dosage. The effect of irradiation on the microhardness of pearlite in both materials was almost identical. The microhardness dropped at first and then increased. The microhardness of ferrite in steel rose continuously and that in iron dropped slightly

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L 32036-65

ACCESSION NR: AP5006340

18 2

with prolonged irradiation. Thus, the decrease in hardness is associated primarily with softening of pearlite and may be attributed to radiation-induced weakening of the grain and phase boundaries. It appears that two processes take place under the effect of irradiation: a strengthening associated with the formation of defects and blocking of dislocations, and a softening caused by changes in the grain and phase boundaries. Prolonged radiation with numerous impacts of fast neutrons increases the number of lattice distortions and, as a result, strengthens the metal. With short exposures, only a few lattice defects are formed and, as a result, the softening process prevails. Orig. art. has: 4 figures. [ND]

ASSOCIATION: Institut problem lit'ya AN UkrSSR (Institute of Casting Problems, AN UkrSSR)

SUBMITTED: 02Apr64

ENCL: 00

SUB CODE: MM, NF

NO REF SOV: 004

OTHER: 000

ATD PRESS: 3200

Card 2/2

27300-66 EWT(m)/T DIAAP DJ

ACC NR. AM0000750

Monograph

34 UR/

33

B+1

Markovskiy, Evgeniy Adamovich (Candidate of Technical Sciences); Tikhonovich, Vadim Ivanovich (Candidate of Technical Sciences)

Radioactive wear control of parts of an internal combustion engine (Radioaktivnyy kontrol' iznosa detaley dvigateley vnutrennego sgoraniya) Kiev, Izd-vo "Tekhnika,"

TOPIC TAGS: wear resistance, internal combustion engine component, autoradiography, radioisotope

PURPOSE AND COVERAGE: This booklet is intended for technical-engineering and scientific personnel engaged in the study of the useful life of internal combustion engine parts. It is concerned with the wear of engine parts under varying operating conditions and contains information on the use of radioactive isotopes for determining the extent of the wear. Possibilities of accelerating an engine without increasing the wear of its parts are shown.

# TABLE OF CONTENTS:

Foreword — 3

Operating conditions of internal combustion engines and the useful life of their parts — 5

Installations and devices for determining wear resistance of engine parts under  
Card 1/2 UDC: 621.43:546.79

L 27300-66

ACC NR: AM6000750

varying operating conditions — 8

Running-in the surfaces of parts during engine break-in — 28

Wear resistance of internal combustion engine parts as a function of load, operating speed, and the combustion of air-fuel mixture — 32

The effect of intermediate operating and thermal conditions of an engine on the wear resistance of its parts — 51

Determining wear resistance and the quality of machining and rolling of engine parts by way of autoradiography — 64

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SUB CODE: 13/ SUBM DATE: 14Jun65/ ORIG REF: 030/ OTH REF: 006

Card 2/2 CV

L 40796-66 EWT(m)/T/EWP(t)/ETI LUP(c) GG/IN/JD

ACC NR: AP6019714

(A)

SOURCE CODE: UR/0128/66/000/006/0032/0032

AUTHOR: Markovskiy, Ye. A. (Candidate of technical science); Krasnoshchekov, M. M.  
(Engineer)

ORG: none

TITLE: Softening of cast iron on irradiation with neutrons (Presented for discussion)

SOURCE: Liteynoye proizvodstvo, no. 6, 1966, 32

TOPIC TAGS: metal softening, neutron, radiation, cast iron, wear resistance, water moderated reactor

ABSTRACT: Normally, the neutron irradiation of metals increases their strength and reduces their plasticity. However, the irradiation of certain alloys with relatively small neutron doses in a conventional nuclear reactor without special cooling and in the presence of gamma radiation may lead to some softening of these alloys. This has been observed for not only alloys in work-hardened or annealed state but also for annealed malleable cast iron. Thus, the authors exposed groups of specimens of malleable cast iron, annealed for 34 hr at 970°C, to integral fluxes of  $10^{16}$ ,  $10^{17}$ ,  $10^{18}$ ,  $10^{19}$ , and  $10^{20}$  neutrons/cm<sup>2</sup> in a water-moderated

Cord 1/3

UDC: 620.193.6:669.131.2

L 40796466

ACC NR: AP6019714

-ted water-cooled reactor. Before and after the irradiation the specimens were tested for linear wear  $W$ , friction coefficient  $\mu$  and temperature  $t$  of the lubricant emerging from the friction zone, Vickers hardness, and microhardness. The wear tests showed that  $W$ ,  $\mu$  and  $t$  are hardly affected by irradiation. (It is noteworthy, however, that  $W$  increases markedly in the presence of  $10^{18}$  neutrons/cm<sup>2</sup>, although it eventually again returns to normal.) Hardness, as a yardstick of plastic deformation, is a characteristic of the wear resistance of materials. The pattern of variation in the hardness of the irradiated malleable and high-strength cast irons resembles the pattern of variation in their wear resistance. Thus (Fig. 1) hardness decreases following

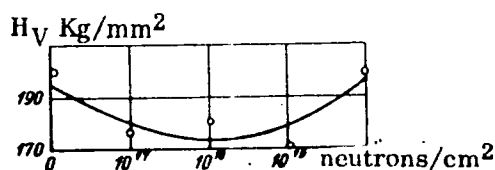


Fig. 1.

the irradiation of malleable cast iron with insignificant neutron fluxes ( $10^{17}$  -  $10^{18}$  neutrons/cm<sup>2</sup>)

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ACC NR: AP6019714

but increases again as the neutron dose is increased. A similar pattern of variation in micro-hardness is observed. Evidently this is associated with the softening of the pearlitic component, since the hardness of the ferritic component increases monotonically with irradiation. It appears that the softening of annealed cast iron and various steels in the presence of low neutron doses is attributable to defects caused in the crystal lattice of the material by the neutron. As regards cast iron, a definite role is played by the cementite and ferrite grain boundaries, which apparently get weakened by the defects introduced by neutron irradiation, when these defects migrate toward grain boundaries. Thus, irradiation is accompanied by two simultaneous processes: softening of the material due to the weakening of grain boundaries and hardening of the crystal lattice in proportion to the number of the bombarding fast neutrons. As irradiation time increases, the hardening process begins to predominate. Orig. art. has: 3 figures.

SUB CODE: 11,18,20 / SUBM DATE: none/

*ms*  
Cord 3/3

MARKOVSKIY, Yu.N.; KRUT', Ya.D.

"Irmino" Mine No.4/2-bis has been awarded the title of Mine of Communist Labor. Ugol' Ukr. 5 no.12:7-8 D '61. (MIRA 14:12)

1. Nachal'nik shakhty no.4/2-bis "Irmino" tresta Kadiyevugol' Luganskogo ekonomicheskogo rayona (for Markovskiy). 2. Glavnyy inzh. shakhty no.4/2-bis "Irmino" tresta Kadiyevugol' Luganskogo ekonomicheskogo rayona (for Krut').

(Donets Basin--Coal mines and mining--Labor productivity)



MARKOVSKIY, Yu.N.; KRUT', Ya.D., inzh.

"Irmino" Mine No. 4 - 2bis is an enterprise of communist labor.  
Ugol' 37 no. 1:10-11 Ja '62. (MIRA 15:2)  
(Donets Basin--Coal mines and mining)

MARKOVSKIY, Yu.N.

Prospects for the further development of Mine No.4-2a of the  
Kadievugol' Trust. Ugol' 39 no.5:33-34 My '64.

(MIRA 17:8)

1. Nachal'nik shakhty No.4-2-bis tresta Kadiyevugol'.

L 47292-50

ACC NR: AP6030733 (A.V) SOURCE CODE: UR/0021/66/000/008/1015/1017

AUTHOR: Tykhonovych, V. I. --Tikhonovich, V. I.; Markovs'kyi, Ye. A. --  
Markovskiy, Ye. A.; Fedorchenko, I. M. (Academician AN UkrRSR)

ORG: Institute of Foundry Problems, AN URSR (Instytut problem lyttya AN URSR)

TITLE: Hysteresis of antifriction properties of materials under conditions of boundary friction in heating and cooling

SOURCE: AN UkrRSR. Dopovidi, no. 8, 1966, 1015-1017

TOPIC TAGS: hysteresis, antifriction property, boundary friction

ABSTRACT: The author shows that external heating followed by subsequent cooling produces hysteresis in the antifriction properties of materials in friction. This is explained by the fact that for a period of time the contacting surfaces retain the physicommechanical properties which are true for higher temperatures. This is due to phase transformations in the structure of the metal at the surface of contact. The article was presented by Academician I. M. Fedorchenko of the AN UkrRSR. Orig. art. has 2 figures. [Based on authors' abstract] [SP]

SUB CODE: 1 SUBM DATE: 26Nov65/ ORIG REF: 003/

Card

MARKOW, K.

Some problems of paleogeography of the Quaternary period in the Soviet Union.

p. 251  
Vol. 28, no. 2, 1956  
PRZEGŁAD GEOGRAFICZNY  
Warszawa

SO: Monthly List of East European Accessions (EEAL), LC, Vol. 5, no.12  
December 1956

MARKOWA, Janina

Orthopedic chair for patients with bilateral ankylosis of the hip.  
Chir. narz. ruchu 20 no.1:99-100 1955

1. Z Kliniki Ortopedycznej A.M. w Poznaniu. Kierownik: prof. dr  
W.Dęga.

(HIP, diseases,  
ankylosis, orthopedic chair for patients with bilateral  
ankylosis)

(ORTHOPEDICS, apparatus and instruments,  
chair for patients with bilateral ankylosis of hip)

MARKOWA, Janina

Occupational rehabilitation of rheumatic patients. Postepy reumat.  
no.3:146-150 1957.

1. Z Kliniki Ortopedycznej A. M. w Poznaniu. Kierownik: prof. dr W. Dega  
i z Instytutu Reumatologii w Warszawie. Kierownik: prof. dr E. Reichert.  
(REHABILITATION, in various dis.  
rheum. dis. (Pol))  
(RHEUMATISM, ther.  
rehabil. of rheum. patients (Pol))

MARKOWA, Janina; MOL-JASTAL, Anna

Role of the muscular system in the appearance of rheumatic contractures of the knee joint according to our investigations.  
Chir.narz.ruchu ortop.polska 25 no.6:597-607 '60.

1. Z Panstwowego Instytutu Reumatologicznego, Dyrektor: prof.dr E.Reicher, Oddzial w Krakowie, Kierownik: prof.dr A.Sabatowski  
Kierownik naukowy: prof.dr A. Sokolowski.

(ARTHRITIS RHEUMATOID compl)

(CONTRACTURE etiol)

(KNEE dis)

MARKOWA, Janina; ZUREK-GOMULKA, Wieslawa

Congenital bilateral dislocation of the head of the radius. Polski  
przegl. chir. 33 no.4:361-363 '61.

1. Z II Kliniki Chirurgicznej A.M. w Krakowie Kierownik: prof  
dr K. Michejda [deceased].  
(ELBOW fract & disloc)



MARKOWA, Janina; PITUCHOWA, Janina; MAREK, Alfred

Histologic patterns of changes in the motor apparatus in the course of experimental infection of mice with the virus of tick-borne encephalitis. Acta medica polona 3 no.1:41-48 '62.

1. The II Surgical Clinic, Medical Academy, Cracow Director: prof. dr. J. Oszacki Department of Pathological Anatomy, Medical Academy, Cracow Director: prof. dr J.Kowalczykova The III Surgical Clinic, Medical Academy, Cracow Director: prof. dr J.Jasienski.  
(ENCEPHALITIS EPIDEMIC exper) (BONE AND BONES pathol)  
(MUSCLES)

MARKOWA, Janina; MAREK, Alfred; PITUCHOWA, Janina

The course of viral lesions of the bones in mice infected experimentally with the L<sub>61</sub> strain of tick-borne encephalitis. Acta med. pol 3 no.4: 323-335 '62.

1. II Surgical Clinic, Medical Academy, Cracow. Director: Prof. Dr J. Oszaeki III Surgical Clinic, Medical Academy, Cracow. Director: Prof. Dr. J. Jasienski Department of Pathological Anatomy, Medical Academy, Cracow. Director: Prof. Dr J. Kowalczykowa.

(ENCEPHALITIS EPIDEMIC) (ENCEPHALITIS VIRUSES)  
(BONE MARROW DISEASES) (BONE DISEASES) (JOINT DISEASES)

MARKOWA, Janina; MAREK, Alfred

Experimental infection of the bone tissue in mice with the American strain of western equine encephalitis virus. Chir. narz. ruchu ortop. polska 27 no.1:79-92 '62.

1. Z II Kliniki Chirurgicznej AM w Krakowie Kierownik: prof. dr J.Oszacki Z III Kliniki Chirurgicznej AM w Krakowie Kierownik: prof. dr J.Jasienski.

(BONE DISEASES exper)

(ENCEPHALOMYELITIS EQUINE virol)

POLAND

MARKOWA, Janina and MAREK, Alfred; Second (II) and Third (III) Surgical Clinics (Klinika Chirurgiczna), AM [Akademia Medyczna, Medical Academy] in Krakow (Directors: Profs. Drs. J. OSZACKI and J. JASIENSKI, respectively) and the Special Laboratory (Pracownia Specjalna) of the Rickettsia-Virus Division (Oddzial Rickettsjowo-Wirusowy), Plant for the Manufacture of Sera and Vaccines (Wytownia Surowic i Szczepionek) in Krakow (Director: Dr. Z. MOSZCZENSKI)

"Reaction of White Mice to Intramedullary Inoculation with Encephalitis Virus."

Warsaw-Krakow, Przegląd Lekarski, Vol 19, Ser II, No 4, 63, pp 222-224.

Abstract: [Authors' Russian summary] In the course of investigating experimentally the reaction of bone tissue to various viruses, the authors found that both the S<sub>47</sub> strain and the equine encephalitis virus of the American West are pathogenic to white mice on intramedullary inoculation, and S<sub>47</sub> retained in the bone tissue even 10 days after inoculation in lethal quantities, even though encephalitis has already set in. Six Polish and one English references.

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POLAND

MARKOWA, Janina and MAREK, Alfred; Second Surgical Clinic (II Klinika Chirurgiczna) (Director: Prof. Dr. J. OSZACKI), Third Surgical Clinic (III Klinika Chirurgiczna) (Director: Prof. Dr. J. JASIENSKI), and of the Special Laboratory (Pracownia Specjalna), Rickettsia-Virus Division (Oddzial Rickettsjowo-Wirusowy), Plant for the Manufacture of Sera and Vaccines (Wytownia Surowic i Szczepionek) in Krakow (Director: Dr. Z. MOSZCZENSKI)

"Investigation on Viral Changes in the Bony Tissue, Experimentally Induced by the K<sub>24</sub> Strain of Tick-Borne Encephalitis."

Warsaw-Krakow, Przegląd Lekarski, Vol 19, Ser II, No 5, 22 May 63, pp 249-254

Abstract: [Authors' English summary modified] Inoculation of K<sub>24</sub> strain of tick-borne encephalitis virus into the bone marrow of white mice produced pathogenic changes in the bone, with hemorrhagic effusion, necrosis of the bony tissue, and regeneration by chondromatous metaplasia. Medullary hyperplasia is characteristic. Radiological changes appear on one side nine days after inoculation and spread to the other side. Two each Polish and English references.

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MARKOWA, Janina; MAREK, Alfred; MIRKOWSKI, Wacław

Contribution to the study of experimental viral osteitis.  
Chir. narząd. ruchu ortop. pol. 28 no.2:231-240 '63.

1. Z II Kliniki Chirurgicznej AM w Krakowie Kierownik: prof.  
dr J. Oszański Z III Kliniki Chirurgicznej AM w Krakowie  
Kierownik: prof. dr J. Jasiński Z Pracowni Specjalnej Oddziału  
Riketsjowo-Wirusowego Wytworni Surowic i Szczepionek w Krakowie  
Dyrektor: dr Z. Moszczński.  
(OSTEITIS) (ENCEPHALITIS VIRUSES)  
(VIRUS DISEASES)

MAREK, Alfred; MARKOWA, Janina

Hepatolienal syndrome in experimental infection of bone with the WEE virus. Chir. narząd. ruchu ortop. Pol. 28 no.7:833-838 '63

1. z III Kliniki Chirurgicznej Akademii Medycznej w Krakowie (Kierownik: prof. dr. J. Jasieński [deceased]); z II Kliniki Chirurgicznej Akademii Medycznej w Krakowie (Kierownik: prof. dr. J. Oszański) i z Wydziału Stomat. i Szczepionek w Krakowie (Dyrektor: dr. Z. Moszczański).

MARKOWA, Janina; MAREK, Alfred; POPIELA, Tadeusz; ZUREK, Wieslawa

Studies of non-bacterial osteomyelitis and arthritis. Chir.  
narzad. ruchu ortop. Pol. 28 no.7:997-1005 '63

1. Z II Kliniki Chirurgicznej Akademii Medycznej w Krakowie  
(Kierownik: prof. dr. J. Oszacki) i z III Kliniki Chirurgicz-  
nej Akademii Medycznej w Krakowie (Kierownik: prof. dr.  
J.Jasierski [deceased]).



MARKOWA, Janina; MAREK, Alfred; SKROCHOWSKA, Maria; KLIMEK, Stanisława

Studies on the presence of the Western equine encephalitis virus  
in the blood in experimental viral diseases of the bone. Chir.  
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(Kierownik: prof. dr. J. Oszański), z III Kliniki Chirurgicznej  
Akademii Medycznej w Krakowie (Kierownik: prof. dr. J. Jasieński)  
i z Wytworni Surowic i Szczepionek w Krakowie (dyrektor: dr. J.  
Moszczenski).

KOBIELOWA, Zofia; MARKOWA, Maria

Clinical studies and attempted ATP therapy of progressive muscular dystrophy in children. *Neurologia etc. polska* 11 no.6:803-809 '61.

1. Z Kliniki Dzieciąt'AM w Krakowie Kierownik: prof. dr T.Giza.  
(ADENOSINE PHOSPHATES ther) (MUSCULAR DYSTROPHY ther)

STERNIK, Klara; MARKOWIAK, Wlodzimierz

Metabolism and physiological role of histamine in the organism.  
Pol. 'yg. lek. 19 no.5:186-188 30 Ja '64.

1. Z Zakladu Patologii i Oswiadczalnej Polskiej Akademii Nauk  
w Warszawie (kierownik: prof. dr Z. Ruszczewski) i Pracownia  
Patofizjologii (kierownik: doc. dr Cz. Maslinski)

MARKOWICZ, J.

Maintenance of the steel cables of cranes.

P. 318, (Przeglad Kolejowy Mechaniczny Vol. 4, no. 10, Oct. 1956, Warszawa, Poland)

Monthly Index of East European Accessions (FEAI) Vol. 7, no. 2,  
February 1956